Trend Study 2-21-01

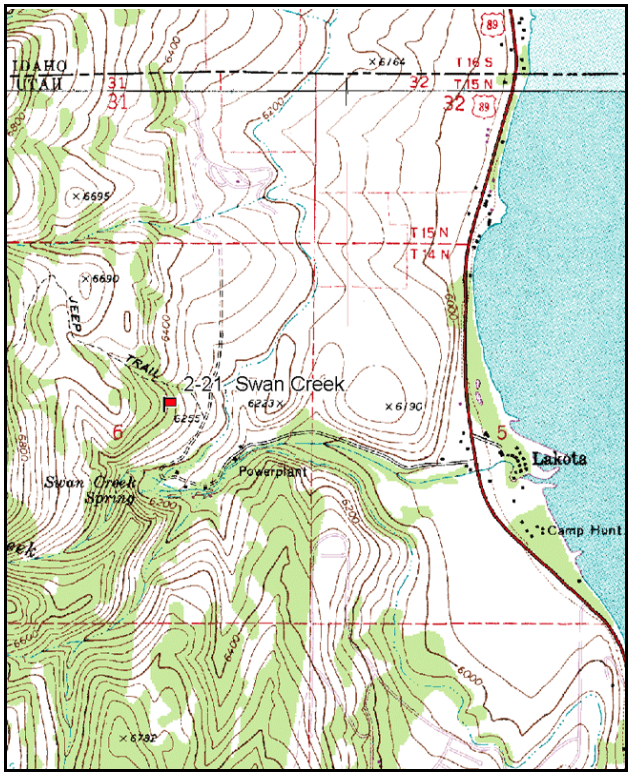
Study site name: Swan Creek . Vegetation type: Curlleaf Mahogany.

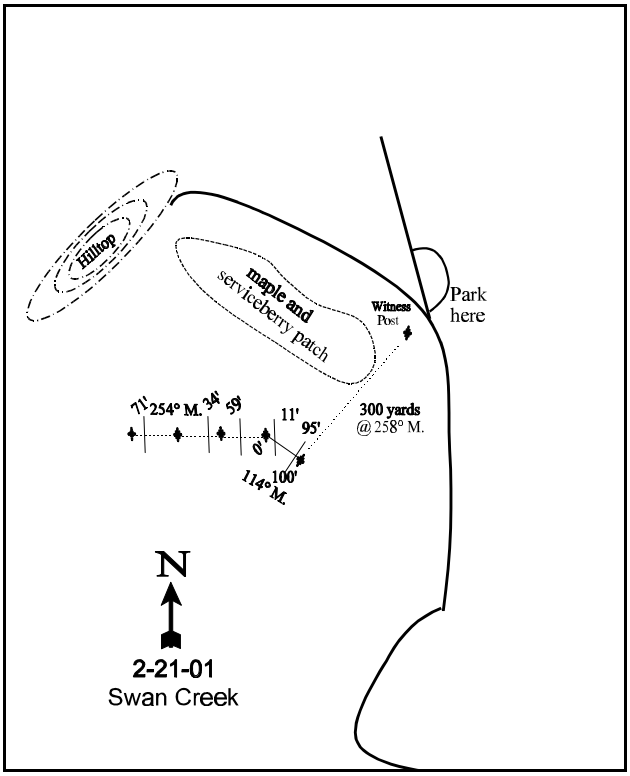
Compass bearing: frequency baseline 114 degrees magnetic.

Frequency belt placement: line 1 (11 & 95ft), line 2 (59ft), line 3 (34ft), line 4 (71ft). Belt rebar: belt 1 on 5 ft, belt 2 on 5 ft, belt 4 no rebar.

LOCATION DESCRIPTION

Drive approximately 3.0 miles north of Garden City on US 89. Turn left on 2150 North in Lakota (1 mile south of Idaho border). Go approximately 1 mile on the narrow road up Swan Creek, staying right at one major fork. Just past the creek from the spring, before the pump house, turn right and go 0.2 miles up a jeep road to another fork. Park here, then walk up across the slope 300 yards at 258 degrees magnetic to the 100-foot baseline stake. The 0-foot baseline stake is 100 feet to the northwest. The rest of the baseline run 254 degrees magnetic off the 0-foot baseline stake. The study site is in the mahogany grove. The 0-foot baseline stake is marked by browse tag #97.





Map Name: Garden City

Diagrammatic Sketch

Township 14N , Range 5E , Section 6

UTM 4648259 N, 464700 E

DISCUSSION

Trend Study No. 2-21

The Swan Creek trend study was established on DWR property in the Swan Creek drainage. It contains areas that receive significant use by wintering elk, deer, and moose. The trend study is located on a curlleaf mountain mahogany hillside with an associated understory of bitterbrush, serviceberry, mountain snowberry, and mountain big sagebrush. The range type provides excellent cover and forage. The site has a southeast aspect with a 30% slope and an elevation of 6,400 feet. The DWR owns only a portion of the section with the remainder being privately owned and used for cabins, recreation, and limited agriculture. Deer and elk pellet groups were fairly abundant with quadrat frequencies of 32% and 27% respectively in 1996. A pellet group transect read on the site in 2001 estimated 47 deer and 36 elk days use/acre (116 ddu/ha and 89 edu/ha). Most of the pellet groups were from winter use, but about one-third appeared to be from spring.

The soil has a loam texture with a soil reaction that is slightly alkaline (pH of 7.5). It is relatively shallow with an estimated effective rooting depth (see methods) of only 10 inches. However, deeper rooted shrubs like curlleaf mountain mahogany are growing on the site. This would suggest that the rooting depth is not restricted in some places. The soil is rocky on the surface and throughout the profile with bedrock layers exposed on the slope. Rock cover is about 23%. The site has good litter and vegetative ground cover, leaving little exposed bare soil. The erosion condition class was determined as stable in 2001.

The site is dominated by a stand of relatively large curlleaf mountain mahogany which provided 22% overhead canopy cover in 2001. It's density was estimated at 166 plants/acre in 1990 and 220 plants/acre in 2001. Point-center quarter data from 1996 estimated 148 mahogany/acre with an average diameter of just over 4½ inches. Most of the mahogany sampled in 1990 and 1996 were large mature plants which were mostly unavailable to browsing. Use of the available portions was moderate to heavy but vigor was good. During the 2001 reading, the population density remained similar to 1996 estimates, but the composition of the stand is now about half young plants (45%). Due to the lack of dead plants, this would appear to be an age class identification problem in 1996 which classified young plants as mature. In any event, the population is moderate to heavily browsed where available. Vigor is normal and percent decadence is low.

Important understory shrubs include serviceberry, mountain big sagebrush, and bitterbrush. Serviceberry is moderately abundant with 840 plants/acre estimated in 1996, increasing to 1,060 by 2001. They have consistently displayed moderate to heavy use since 1990, but vigor is currently good. Poor vigor was noted on 10% of the plants sampled in 1996 due to an infestation of rust. Mountain big sagebrush and bitterbrush occur in small numbers yet they appear to have stable populations.

Bluebunch wheatgrass and Sandberg bluegrass are prominent in the understory. However, annual brome grasses (Japanese and cheatgrass brome) accounted for 62% of the grass cover in 1996. Annual grasses declined to only 10% of the grasses cover in 2001. Forbs are moderately diverse but only a few species are abundant. The most common perennial forbs include arrowleaf balsamroot and rock goldenrod which provided 75% of the forb cover in 1996 and 73% in 2001.

1990 APPARENT TREND ASSESSMENT

Big game winter range values on this diverse browse site are good. Vegetative trend appears stable. The soil condition is good, and there is little erosion occurring. The browse trend appears stable but the increaser species should be closely monitored. The herbaceous component is adequate but composition could be better.

1996 TREND ASSESSMENT

Trend for soil appears up due to a decline in bare ground from 15% to 5%. Vegetation and litter cover are abundant and erosion is not a problem on this site. The browse trend appears stable for the key species, curlleaf mountain mahogany. Serviceberry, an important understory shrub, also has a stable trend. Trend for the herbaceous understory is stable for grasses but down for forbs. Sum of nested frequency of perennial forbs has declined 50% with most species declining in sum of nested frequency value. Overall, trend for the herbaceous understory is slightly down.

TREND ASSESSMENT
soil - up (5)
browse - stable (3)
herbaceous understory - slightly down (2)

2001 TREND ASSESSMENT

Trend for soil is slightly down due to an increase in percent cover of bare ground and a slight decline in vegetation and litter cover. As a result, the ratio of protective ground cover to bare soil declined 33%. The primary cause of the declining soil trend is the significant decline in cover and nested frequency of the annuals, Japanese brome and cheatgrass. Cover of these grasses has dropped from 14% in 1996 to only 1% in 2001. Even with this decrease, erosion is not a problem. The erosion condition class was determined to be stable. Trend for the key browse species, curlleaf mountain mahogany, is stable. Population density has remained similar, utilization is moderate to heavy, and vigor is normal. The increase in young plants in 2001 appears to be a classification problem in 1996. Serviceberry, a key understory species, displays a slightly improving trend due to an increase in density, improved vigor, and a decline in percent decadence. In addition, young plants are more numerous and now account for 38% of the population. Mountain big sagebrush and bitterbrush occur in limited numbers yet appear to have stable populations. Overall, the browse trend is slightly up due to the improvement in serviceberry which provides a large proportion of the available browse forage. Trend for the herbaceous understory is up slightly. Sum of nested frequency values for perennial grasses and forbs have increased slightly. In addition, sum of nested frequency of the annuals, Japanese brome and cheatgrass declined significantly. Cover also declined from 14% in 1996 to only 1%. Annual forbs increased in nested frequency although cover remained low at 1% in 1996 and 2001.

TREND ASSESSMENT
soil - slightly down (2)
browse - up slightly (4)
herbaceous understory - up slightly (4)

HERBACEOUS TRENDS --
Herd unit 02 , Study no: 21

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover %	
		'90	'96	'01	'90	'96	'01	'96	'01
G	Agropyron spicatum	$_{b}$286	$_{a}$222	$_{ab}$241	95	76	81	6.91	9.72
G	Bromus japonicus (a)	-	$_{b}$162	$_{a}$44	-	51	19	5.26	.26
G	Bromus tectorum (a)	-	$_{b}$168	$_{a}$75	-	51	31	8.59	1.02
G	Oryzopsis hymenoides	-	4	1	-	2	1	.03	.06
G	Poa bulbosa	$_{a}$-	$_{a}$3	$_{b}$20	-	3	7	.09	.69
G	Poa pratensis	-	1	1	-	1	1	.03	.01
G	Poa secunda	$_{a}$55	$_{b}$105	$_{b}$122	27	42	50	1.46	1.46
Total for Annual Grasses		0	330	119	0	102	50	13.85	1.29
Total for Perennial Grasses		341	335	385	122	124	140	8.53	11.94
Total for Grasses		341	665	504	122	226	190	22.39	13.24
F	Achillea millefolium	6	7	1	3	3	1	.16	.03
F	Agoseris glauca	25	26	23	12	14	12	.12	.06
F	Alyssum alyssoides (a)	-	183	198	-	70	73	.99	.76
F	Arabis spp.	$_{b}$10	$_{a}$-	$_{a}$-	5	-	-	-	-
F	Balsamorhiza sagittata	$_{b}$76	$_{ab}$52	$_{a}$40	34	27	21	3.67	4.35
F	Castilleja linariaefolia	4	-	2	2	-	1	-	.03
F	Camelina microcarpa (a)	-	$_{a}$12	$_{b}$43	-	8	19	.06	.12
F	Calochortus nuttallii	$_{b}$19	$_{a}$-	$_{a}$3	10	-	1	-	.00
F	Cirsium undulatum	7	4	2	4	3	1	.19	.15
F	Collomia linearis (a)	-	-	7	-	-	3	-	.01
F	Comandra pallida	$_{b}$26	$_{a}$4	$_{a}$2	11	2	1	.01	.03
F	Collinsia parviflora (a)	-	$_{a}$9	$_{b}$99	-	3	38	.01	.19
F	Crepis acuminata	$_{b}$106	$_{a}$16	$_{a}$33	56	8	18	.19	.54
F	Delphinium nuttallianum	-	-	2	-	-	2	-	.01
F	Descurainia pinnata (a)	-	$_{a}$-	$_{b}$13	-	-	7	-	.03
F	Draba spp. (a)	-	-	3	-	-	1	-	.03
F	Epilobium brachycarpum (a)	-	2	-	-	2	-	.01	-
F	Eriogonum umbellatum	5	-	-	2	-	-	-	-
F	Gayophytum ramosissimum (a)	-	-	3	-	-	2	-	.01
F	Hackelia patens	7	16	18	3	9	8	.19	.19
F	Lappula occidentalis (a)	-	$_{a}$-	$_{b}$25	-	-	11	-	.19
F	Lactuca serriola	3	-	3	1	-	1	-	.03
F	Lomatium spp.	5	-	1	2	-	1	-	.00
F	Machaeranthera canescens	-	-	-	-	-	-	-	.03

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover %	
		'90	'96	'01	'90	'96	'01	'96	'01
F	Microsteris gracilis (a)	-	$_{a}$-	$_{b}$41	-	-	17	-	.08
F	Penstemon humilis	-	-	2	-	-	2	-	.04
F	Penstemon spp.	$_{b}$25	$_{ab}$13	$_{a}$9	11	6	6	.13	.10
F	Petradoria pumila	58	58	50	22	27	21	3.01	3.36
F	Phlox longifolia	$_{b}$28	$_{a}$-	$_{a}$7	14	-	4	-	.02
F	Tragopogon dubius	$_{a}$7	$_{ab}$9	$_{b}$19	3	4	10	.02	.18
F	Veronica biloba (a)	-	10	5	-	4	2	.07	.01
F	Zigadenus paniculatus	$_{b}$9	$_{a}$-	$_{ab}$5	5	-	3	-	.04
Total for Annual Forbs		0	216	437	0	87	173	1.15	1.44
Total for Perennial Forbs		426	205	222	200	103	114	7.72	9.22
Total for Forbs		426	421	659	200	190	287	8.87	10.67

Values with different subscript letters are significantly different at alpha = 0.10 (annuals excluded)

BROWSE TRENDS --
Herd unit 02 , Study no: 21

Type	Species	Strip Frequency		Average Cover %	
		'96	'01	'96	'01
B	Amelanchier alnifolia	26	23	2.77	2.39
B	Artemisia tridentata vaseyana	7	5	.30	.00
B	Cercocarpus ledifolius	11	11	2.38	1.84
B	Cercocarpus montanus	1	1	-	-
B	Chrysothamnus viscidiflorus viscidiflorus	9	12	.86	1.38
B	Echinocereus spp.	0	1	-	-
B	Eriogonum microthecum	23	23	.87	.66
B	Gutierrezia sarothrae	32	44	.69	1.74
B	Mahonia repens	29	35	.40	.93
B	Purshia tridentata	4	6	.06	.03
B	Symphoricarpos oreophilus	22	19	.93	1.10
Total for Browse		164	180	9.30	10.11

CANOPY COVER --
Herd unit 02 , Study no: 21

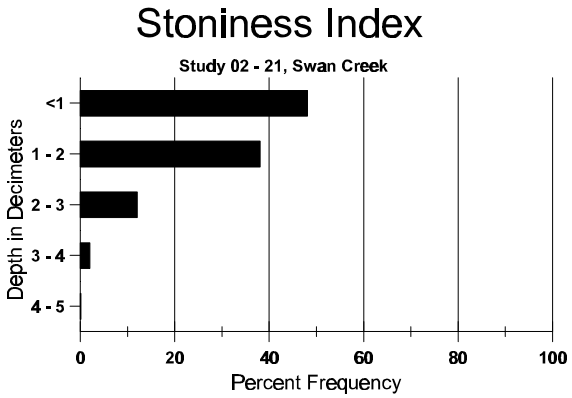
Species	Percent Cover	
	'96	'01
Cercocarpus ledifolius	15	22

BASIC COVER --
Herd unit 02 , Study no: 21

Cover Type	Nested Frequency		Average Cover %		
	'96	'01	'90	'96	'01
Vegetation	366	343	7.50	39.27	33.79
Rock	289	278	21.25	21.62	23.00
Pavement	99	159	3.00	1.18	2.80
Litter	392	364	53.25	48.38	45.56
Cryptogams	48	38	0	.50	.99
Bare Ground	126	172	15.00	5.15	9.51

SOIL ANALYSIS DATA --
Herd Unit 02, Study no: 21, Swan Creek

Effective rooting depth (in)	Temp °F (depth)	PH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
10.3	58.0 (11.9)	7.5	34.6	38.1	27.4	6.6	9.6	230.4	.7



PELLET GROUP FREQUENCY --
Herd unit 02 , Study no: 21

Type	Quadrat Frequency	
	'96	'01
Rabbit	2	1
Elk	27	13
Deer	32	29

Pellet Transect	
Pellet Groups per Acre	Days Use per Acre (ha)
01	01
9	N/A
470	36 (89)
609	47 (116)

BROWSE CHARACTERISTICS --
Herd unit 02 , Study no: 21

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Amelanchier alnifolia																		
S	90	1	-	-	1	-	-	-	-	-	1	-	1	-	66			2
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
Y	90	6	6	-	1	1	-	-	-	-	13	-	1	-	466			14
	96	7	3	-	-	-	-	-	-	-	8	2	-	-	200			10
	01	11	9	-	-	-	-	-	-	-	20	-	-	-	400			20
M	90	1	8	1	-	-	-	-	-	-	7	3	-	-	333	28	17	10
	96	4	16	5	-	-	-	-	-	-	15	10	-	-	500	18	31	25
	01	6	17	10	-	-	-	-	-	-	33	-	-	-	660	18	28	33
D	90	-	-	2	-	-	-	-	-	-	-	2	-	-	66			2
	96	1	4	2	-	-	-	-	-	-	2	1	1	3	140			7
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
X	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'90	58%	12%	04%	- 3%
'96	55%	17%	10%	+21%
'01	49%	19%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'90	865	Dec:		8%
'96	840			17%
'01	1060			0%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Artemisia tridentata vaseyana																		
S	90	1	-	-	-	-	-	-	-	-	1	-	-	-	33			1
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	90	1	-	-	-	-	-	-	-	-	1	-	-	-	33	26	17	1
	96	1	2	-	-	-	-	-	-	-	2	-	-	1	60	10	22	3
	01	3	-	-	-	-	-	-	-	-	3	-	-	-	60	16	32	3
D	90	-	1	1	-	-	-	-	-	-	2	-	-	-	66			2
	96	2	2	-	-	-	-	-	-	-	4	-	-	-	80			4
	01	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
X	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	280			14
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	160			8

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'90	33%	33%	00%	+45%
'96	44%	00%	11%	-44%
'01	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'90	99	Dec:		67%
'96	180			44%
'01	100			40%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Cercocarpus ledifolius																		
S	90	1	-	-	-	-	-	-	-	-	1	-	-	-	33			1
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	90	-	-	1	-	-	-	-	-	-	1	-	-	-	33			1
	96	-	-	2	-	-	-	-	-	-	2	-	-	-	40			2
	01	1	1	1	1	-	-	1	-	-	5	-	-	-	100			5
M	90	-	-	-	-	-	-	4	-	-	4	-	-	-	133	157	152	4
	96	-	4	3	-	-	-	1	4	-	12	-	-	-	240	11	24	12
	01	-	-	1	-	1	-	-	3	-	5	-	-	-	100	20	22	5
D	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	-	-	-	-	-	1	-	-	-	1	-	-	-	20			1
X	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'90	00%	20%	00%	+41%
'96	29%	36%	00%	-21%
'01	18%	27%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'90	166	Dec:		0%
'96	280			0%
'01	220			9%

Cercocarpus montanus																		
M	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	-	-	1	-	-	-	-	-	-	1	-	-	-	20	36	54	1
	01	-	1	-	-	-	-	-	-	-	1	-	-	-	20	32	59	1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'90	00%	00%	00%	
'96	00%	100%	00%	+ 0%
'01	100%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)			
'90	0	Dec:	-
'96	20		-
'01	20		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Chrysothamnus viscidiflorus viscidiflorus																		
Y	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	90	-	-	1	-	-	-	-	-	-	1	-	-	-	33	10	10	1
	96	11	1	-	2	-	-	-	-	-	14	-	-	-	280	14	24	14
	01	25	-	-	-	-	-	-	-	-	25	-	-	-	500	12	25	25
D	90	1	-	-	-	-	-	-	-	-	1	-	-	-	33			1
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'90	00%	50%	00%	+78%
'96	07%	00%	00%	+40%
'01	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'90	66	Dec:	50%
	'96	300		0%
	'01	500		0%

Echinocereus spp.																		
M	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	01	1	-	-	-	-	-	-	-	-	1	-	-	-	20	-	-	1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'90	00%	00%	00%	
'96	00%	00%	00%	
'01	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'90	0	Dec:	-
	'96	0		-
	'01	20		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Eriogonum microthecum																		
M	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	21	1	-	1	-	-	-	-	-	23	-	-	-	460	14	19	23
	01	38	-	-	-	-	-	-	-	-	38	-	-	-	760	12	16	38
D	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	3	1	-	-	-	-	-	-	-	3	-	-	1	80			4
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
X	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	40			2

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'90	00%	00%	00%	
'96	07%	00%	04%	+29%
'01	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'90	0	Dec:		0%
'96	540			15%
'01	760			0%

Gutierrezia sarothrae																		
S	90	2	-	-	-	-	-	-	-	-	2	-	-	-	66			2
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
Y	90	10	-	-	-	-	-	-	-	-	10	-	-	-	333			10
	96	5	-	-	-	-	-	-	-	-	5	-	-	-	100			5
	01	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
M	90	54	-	-	-	-	-	-	-	-	54	-	-	-	1800	11	16	54
	96	49	-	-	1	-	-	-	-	-	50	-	-	-	1000	8	10	50
	01	77	-	-	-	-	-	-	-	-	76	1	-	-	1540	10	15	77
D	90	2	-	-	-	-	-	-	-	-	1	-	1	-	66			2
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	1	-	-	-	-	-	-	-	-	-	-	-	1	20			1
X	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'90	00%	00%	02%	-50%
'96	00%	00%	00%	+31%
'01	00%	00%	01%	

Total Plants/Acre (excluding Dead & Seedlings)			
'90	2199	Dec:	3%
'96	1100		0%
'01	1600		1%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Mahonia repens																		
Y	90	24	2	-	1	-	-	-	-	-	27	-	-	-	900			27
	96	51	-	-	-	-	-	-	-	-	51	-	-	-	1020			51
	01	10	-	-	-	-	-	-	-	-	10	-	-	-	200			10
M	90	46	-	-	14	-	-	-	-	-	60	-	-	-	2000	4	4	60
	96	60	-	-	8	-	-	-	-	-	68	-	-	-	1360	5	6	68
	01	207	-	-	1	-	-	-	-	-	208	-	-	-	4160	3	5	208

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'90	02%	00%	00%	-18%
'96	00%	00%	00%	+45%
'01	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'90	2900	Dec:	-
	'96	2380		-
	'01	4360		-

Purshia tridentata																		
Y	90	1	-	-	-	-	-	-	-	-	1	-	-	-	33			1
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
M	90	2	1	-	-	-	-	-	-	-	3	-	-	-	100	11	12	3
	96	-	4	-	-	-	-	-	-	-	4	-	-	-	80	7	20	4
	01	1	2	2	-	-	-	-	-	-	5	-	-	-	100	19	41	5

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'90	25%	00%	00%	-40%
'96	100%	00%	00%	+33%
'01	33%	33%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'90	133	Dec:	-
	'96	80		-
	'01	120		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Symphoricarpos oreophilus																		
S	90	2	-	-	-	-	-	-	-	-	2	-	-	-	66			2
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	90	5	-	-	-	-	-	-	-	-	5	-	-	-	166			5
	96	9	-	-	-	-	-	-	-	-	9	-	-	-	180			9
	01	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
M	90	15	2	-	3	-	-	-	-	-	17	-	3	-	666	19	17	20
	96	20	-	-	-	-	-	-	-	-	18	2	-	-	400	14	23	20
	01	26	1	-	-	-	-	-	-	-	26	1	-	-	540	14	23	27
D	90	3	-	-	-	-	-	-	-	-	2	-	1	-	100			3
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	01	2	-	-	-	-	-	-	-	-	1	-	-	1	40			2

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'90	07%	00%	14%	-36%
'96	00%	00%	00%	+ 0%
'01	03%	00%	03%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'90	932	Dec:	11%
	'96	600		3%
	'01	600		7%